

## Project:

Impermeable pipe system for cruise ship terminal  
and port area in Copenhagen



egeplast

# Project: Impermeable pipe system for cruise ship terminal and port area in Copenhagen

The egeplast SLA® Barrier Pipe was used for a reliable drinking water supply in Copenhagen's industrially used port area.

Project data:	
Project description:	New installation of a drinking water mains in the course of an urban development project in the northern port area of Copenhagen
Challenges:	Danger of contamination of drinking water resulting from industrial use of the area in the past
Solution:	egeplast SLA® Barrier Pipe with permeation barrier
Installation:	2/3 in HDD installation, with open trench installation in connection areas
Pipe material used:	egeplast SLA® Barrier Pipe, OD 560 mm SDR 11 straight length à 13,4 m
Parties involved in the project:	Constructor: NCC Construction Denmark A/S



The pipe ends were butt welded together; the recoating of the weld area took place using the extrusion welding method.

The port area to the north of Copenhagen is one of the biggest and most longterm urban development projects in Denmark. 350,000 sq. metres of residential and office buildings are being built there for thousands of people who wish to live and work near the water. The port also includes the cruise ship terminal which handles a good million cruise passengers on some 400 ships each year. Leading international cruise companies use Copenhagen, Scandinavia's largest metropolis, as starting point when visiting other surrounding ports in Germany, Poland, Russian and the Baltic.

The task of planners was to provide a safe water supply for the port area which includes providing drinking water for cruise ships. Port areas can be contaminated with pollutants due to industrial use. The danger of contamination to drinking water led to the use of the egeplast SLA® Barrier Pipe with a diameter of OD 560 mm. This reliably excludes the permeation of pollutants. Since the pipes were installed under existing buildings in some cases, trenchless installation was the only available option. The protective coating of the SLA® Barrier Pipe permits safe trenchless installation also under difficult conditions. 2/3 of the new pipeline was inserted using the horizontal directional drilling method. The longest insertion length here was 240 m. A pipe trench was only needed at connection points to existing water pipelines.



In this construction measure, particular attention was paid to the accurate execution of welded joints. In order that individual lengths of pipe were welded in compliance with regulations under adverse weather conditions, welding took place in a temperature-controlled welding container.

Since the pipe sections were inserted without trench, the weld joint area had to be specially protected from the high mechanical strain that arises. The option of re-welding the protective coating proved useful here. With this kind of retrospective coating, a piece of protective coating that fits the weld area is re-welded in the unprotected area by means of a hand extruder. This ensures that the pipe is protected during insertion and remains undamaged after installation. Instruction on this retrospective coating technique was provided by the egeplast Technical Consulting Service, which accompanied this project from the planning phase and then during construction. The SLA® Barrier Pipe system delivered a range of advantages for this construction measure. On the one hand, due to the flexible material it was possible to achieve much narrower radii along the length of the horizontal directional drilling compared to other pipeline materials. On the other hand, the metallic diffusion-resistant intermediate layer enables unrestricted location of the pipe throughout its entire service life. The lengths of pipe delivered by truck were installed in a short period by a qualified team of fitters to the complete satisfaction of the client. ■



## Consulting:



The selection of plastic pipe materials and systems for underground installation has extremely long-term implications. Designed for a service-life of several generations, pipelines are scarcely accessible for retrospective modification once they have been installed:

- High-value surface occur
- Building construction follows underground activities
- Repair costs in case of damage can be a multiple of the original investment amount
- Diversion of traffic and blocking of roads is scarcely possible with today's high traffic densities

For these reasons, planners, project clients and operators of piping systems are confronted with the challenge of gathering the best possible knowledge of the potentials and limitations of pipe materials before a decision is made. In addition, the costs for underground engineering must also be taken into account. Actual pipe-system costs rarely make up more than 15 % of total costs, whereas the underground work and restoration of the surface account for 85 % or more. The use of trenchless installation methods thus presents significant cost-reduction potentials.

The egeplast team of consultants will be happy to help you in every decision-making phase.

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